What is claimed is:

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1.

A nucleic acid construct for post-transcriptional control of expression of a protein in a eucaryotic cell, wherein said construct encodes an mRNA corresponding to said protein, and said mRNA comprises a metabolite responsive instability element, whereby post-transcriptional stability of said mRNA is controlled by the metabolic substance or an analogue thereof.

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2. The construct of claim 1 wherein the metabolite responsive instability element comprises the sequence TAACTCTGAATTTTTAAAACCCGAAGTCAAGAGCTAGTA.

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- The construct as in claim 1 wherein the metabolic substance is glucose, 3-O-methylglucose, 2-deoxyglucose, or combinations thereof.
- 4. The construct as in claim 1 wherein said nucleic acid is a plasmid.

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- The construct as a claim wherein said nucleic acid is a virus.
 - The construct as in claim1 wherein said nucleic acid is a retrovirus.
- 7. The construct as in claim 1 wherein said nucleic acid is a naked DNA.
- 8. A transgenic animal comprising the construct of claim1.
- 9. The animal of claim 8 wherein said animal is a mouse.
- 10. An antisense nucleic acid or analogue that is complementary to the nucleic acid sequence TAACTCTGAATTTTTAAAACCCGAAGTCAAGAGCTAGTA.
- An antisense nucleic acid or analogue that is complementary to at least 15 consecutive base pairs of the nucleic acid sequence TAACTCTGAATTTTTAAAAGCCGAAGTCAAGAGCTAGTA.
- 12. A method for controlling expression of a gene in a eucaryotic cell, comprising inserting a metabolite responsive instability element into said gene, whereby post-transcriptional stability of mRNA is controlled by the metabolic substance or an analogue thereof.
- 13. The method as in claim 12, wherein said metabolite responsive instability element comprises the sequence TAACTCTGAATTTTTAAAACCCGAAGTCAAGAGCTAGTA.
- 14. The method as in claim 12, wherein said metabolic substance is glucose, 3-O-methylglucose, 2-deoxyglucose, or mixtures thereof.



- A method for treating vascular disease comprising inserting the construct of claim 1 into at least one cell of a patient.
- 16. A method for treating cancer comprising inserting the construct of claim 1 into at least one cell of a patient.
- 17. A method for treating hypertension comprising inserting the construct of claim 1 into at least one cell of a patient.
- 18. A method for treating atherosclerosis comprising inserting the construct of claim 1 into at least one cell of a patient.
- 19. A method of screening for mutations of the metabolite responsive instability element of claim1 comprising:

obtaining a DNA sample from a patient; and sequencing said metabolite responsive instability element, and detecting mutations within said metabolite responsive instability element.

20. A recombinant cell comprising the construct of claim 1.

- 21. A primer comprising a nucleic acid capable of recognizing and binding the metabolite responsive instability element of claim 1.
- 22. A kit for detecting the metabolite responsive instability element of claim 1, which comprises multiple containers wherein each of the separate containers comprise: a set of primers for PCR detection of said metabolite responsive instability element, and optionally a positive control comprising the metabolite responsive instability element DNA.
- 23. A nucleic acid probe comprising a DNA sequence having affinity for the DNA sequence of the metabolite responsive instability element of claim 1.
- A host cell comprising the nucleic acid of claim 1, in which said nucleic acid is isolated and purified.
- 25. A replicable vector comprising the nucleic acid construct of claim1.

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